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## CLAIMS

What is claimed is:

- 5 1. A method of diagnosing a psychiatric disorder or a comorbid disorder in an individual comprising detecting the orientation of the Inv8p23 genomic region, wherein the orientation of the Inv8p23 genomic region is indicative of a psychiatric disorder.
- 10 2. The method of Claim 1, wherein the psychiatric disorder is an anxiety disorder.
3. The method of Claim 2, wherein the anxiety disorder is panic disorder or bipolar disorder.
- 15 4. The method of Claim 3, wherein the inverted orientation of the Inv8p23 genomic region is indicative of panic disorder.
5. The method of Claim 1, wherein the comorbid disorder is selected from the group consisting of: depression, bipolar disorder, obsessive-compulsive disorder, histrionic personality disorder, family denial and dysfunction, hypercholesterolemia and substance abuse.
- 20 6. The method of Claim 5, wherein the comorbid disorder is selected from the group consisting of: depression, bipolar disorder and hypercholesterolemia.
- 25 7. The method of Claim 1, wherein the orientation of Inv8p23 is determined by detecting one or more markers at one or more polymorphic sites, wherein the one or more polymorphic sites are in linkage disequilibrium with Inv8p23, and wherein a particular allele at the one or more polymorphic sites is indicative of a particular orientation of Inv8p23.
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8. The method of Claim 7, wherein the one or more markers are selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
9. The method of Claim 8, wherein the one or more markers comprise the A allele for SG08S71 and the G allele for DG00AAHBG.
10. The method of Claim 7, wherein the inverted allele of Inv8p23 is detected by detecting a haplotype comprising one or more genetic markers.
11. The method of Claim 10, wherein one or more genetic markers of the haplotype are selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
12. The method of Claim 11, wherein the haplotype comprises the A allele for SG08S71 and the G allele for DG00AAHBG.
13. The method of Claim 7, wherein the one or more surrogate markers comprise a marker in linkage disequilibrium with one or more markers selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102,

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SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.

- 5    13b.    The method of Claim 13, wherein the one or more surrogate markers  
comprise DG8S132.
14.    A kit for diagnosing a psychiatric disorder or a comorbid disorder  
comprising at least one agent useful for detecting the orientation of the  
10    Inv8p23 genomic region, wherein the orientation of the Inv8p23 genomic  
region is indicative of the psychiatric disorder.
15.    The kit of Claim 14, wherein the psychiatric disorder is an anxiety disorder.
- 15    16.    The kit of Claim 15, wherein the anxiety disorder is panic disorder or bipolar  
disorder.
17.    The method of Claim 15, wherein the inverted orientation of the Inv8p23  
20    genomic region is indicative of panic disorder.
18.    The kit of Claim 14, wherein the comorbid disorder is selected from the  
group consisting of: depression, bipolar disorder, obsessive-compulsive  
disorder, histrionic personality disorder, family denial and dysfunction,  
hypercholesterolemia and substance abuse.
- 25    19.    The kit of Claim 18, wherein the comorbid disorder is selected from the  
group consisting of: depression, bipolar disorder and hypercholesterolemia.
20.    The kit of Claim 14, wherein the orientation of Inv8p23 is determined by  
30    detecting one or more markers at one or more polymorphic sites, wherein the  
one or more polymorphic sites are in linkage disequilibrium with Inv8p23,

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and wherein a particular allele at the one or more polymorphic sites is indicative of a particular orientation if Inv8p23.

21. The kit of Claim 20, wherein the one or more markers are selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
22. The kit of Claim 21, wherein the one or more markers comprise the A allele for SG08S71 and the G allele for DG00AAHBG.
23. The kit of Claim 14, wherein the inverted allele of Inv8p23 is detected by detecting a haplotype comprising one or more genetic markers.
24. The kit of Claim 23, wherein one or more genetic markers of the haplotype are selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
25. The kit of Claim 24, wherein the haplotype comprises the A allele for SG08S71 and the G allele for DG00AAHBG.
26. The kit of Claim 20, wherein the one or more markers comprise a marker in linkage disequilibrium with one or more markers selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197,

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5 AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261,  
SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73,  
SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138,  
DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and  
DG8S170.

- 26b. The method of Claim 26, wherein the one or more markers comprise DG8S132.
- 10 27. The kit of Claim 14, wherein bipolar disorder is comorbid with panic disorder.
28. The kit of Claim 27, wherein one or more markers is selected from the group consisting of the markers listed in FIGS. 6A-6K.
- 15 29. The kit of Claim 14, wherein bipolar disorder occurs without PD.
30. The kit of Claim 29, wherein one or more markers are selected from the group consisting of the markers listed in FIGS. 7A-7K.
- 20 31. A method of diagnosing panic disorder or a comorbid disorder in an individual comprising determining the orientation of the Inv8p23 genomic region, wherein the orientation of the Inv8p23 genomic region is indicative of panic disorder.
- 25 32. The method of Claim 31, wherein the orientation of the Inv8p23 genomic region is determined by detecting one or more markers at one or more polymorphic sites, wherein the one or more markers are selected from the group consisting of: SG08S71, DG8S197, SG08S73, DG8S332, AF131215-  
30 4, SG08S5, SG08S520, SG08S95, SG08S508, SG08S102, DG00AAHBG, SG08S70, DG8S161, DG8S298, SG08S506, SG08S15, DG8S249,

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DG8S148, DG8S269, DG8S127, SG08S93, D8S1695, SG08S517,  
AF131215-2, AF131215-1, DG8S242, DG8S136, D8S516, DG8S148,  
SG08S39, D8S1130, DG8S127, DG8S232, DG8S137, DG8S269, D8S550,  
SG08S507, SG08S507, DG8S245, DG8S197, D8S1825, SG08S27,  
5 SG08S27, DG8S257, D8S503, DG8S297, DG8S297, SG08S120,  
SG08S120, D8S351, DG8S159, D8S1695, D8S1759, SG08S26, SG08S26,  
D8S1130, DG8S221, D8S1130, D8S1759, DG8S307, DG8S153, DG8S277,  
DG8S192, D8S1695, DG8S265, DG8S257, DG8S127, DG8S163,  
DG8S163, DG8S156, DG8S261, DG8S179, SG08S138, SG08S32, SG08S76  
10 and DG8S170.

33. The method of Claim 32, wherein the inverted orientation of the Inv8p23  
genomic region is indicative of panic disorder.

15 34. The method of Claim 31, wherein the one or more markers comprise a  
marker in linkage disequilibrium with one or more markers selected from the  
group consisting of: SG08S71, DG8S197, SG08S73, DG8S332, AF131215-  
4, SG08S5, SG08S520, SG08S95, SG08S508, SG08S102, DG00AAHBG,  
SG08S70, DG8S161, DG8S298, SG08S506, SG08S15, DG8S249,  
20 DG8S148, DG8S269, DG8S127, SG08S93, D8S1695, SG08S517,  
AF131215-2, AF131215-1, DG8S242, DG8S136, D8S516, DG8S148,  
SG08S39, D8S1130, DG8S127, DG8S232, DG8S137, DG8S269, D8S550,  
SG08S507, SG08S507, DG8S245, DG8S197, D8S1825, SG08S27,  
SG08S27, DG8S257, D8S503, DG8S297, DG8S297, SG08S120,  
25 SG08S120, D8S351, DG8S159, D8S1695, D8S1759, SG08S26, SG08S26,  
D8S1130, DG8S221, D8S1130, D8S1759, DG8S307, DG8S153, DG8S277,  
DG8S192, D8S1695, DG8S265, DG8S257, DG8S127, DG8S163,  
DG8S163, DG8S156, DG8S261, DG8S179, SG08S138, SG08S32, SG08S76  
and DG8S170.

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- 34b. The method of Claim 34, wherein the one or more markers comprise DG8S132.
35. A method of diagnosing bipolar disorder associated with panic disorder in an individual comprising determining the orientation of the Inv8p23 genomic region, wherein the orientation of the Inv8p23 genomic region is indicative of bipolar disorder associated with panic disorder.
36. The method of Claim 35, wherein the orientation of the Inv8p23 genomic region is determined by detecting one or more markers at one or more polymorphic sites wherein the one or more polymorphic sites are in linkage disequilibrium with the Inv8p23 genomic region and wherein the one or more markers are indicative of the orientation of the Inv8p23 genomic region.
37. The method of Claim 36, wherein the one or more markers are selected from the group consisting of the markers listed in FIGS. 6A-6K.
38. A method of diagnosing bipolar disorder without associated panic disorder in an individual comprising determining the orientation of the Inv8p23 genomic region, wherein the orientation of the Inv8p23 genomic region is indicative of bipolar disorder without associated panic disorder.
39. The method of Claim 38, wherein the orientation of the Inv8p23 genomic region is determined by detecting one or more markers at one or more polymorphic sites wherein the one or more polymorphic sites are in linkage disequilibrium with the Inv8p23 genomic region and wherein the one or more markers are indicative of the orientation of the Inv8p23 genomic region.

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40. The method of Claim 39, wherein the marker is selected from the group consisting of the markers listed in FIGS. 7A-7K.
41. A method for determining the orientation of the Inv8p23 inversion fragment  
5 comprising detecting one or more surrogate markers.
42. The method of Claim 41, wherein one or more surrogate markers are selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27,  
10 DG8S261, SG08S71, SG08S32, SG08S517, SG08S70, SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
- 15 43. The method of Claim 41, wherein the one or more surrogate markers comprise a marker in linkage disequilibrium with one or more markers selected from the group consisting of: SG08S5, SG08S95, DG8S269, DG8S163, DG8S197, AF131215-2, DG8S127, SG08S120, DG8S179, SG08S27, DG8S261, SG08S71, SG08S32, SG08S517, SG08S70,  
20 SG08S102, SG08S73, SG08S76, SG08S26, DG8S242, SG08S15, DG8S257, SG08S138, DG8S161, SG08S520, DG00AAHBG, SG08S508, DG8S156, D8S1695 and DG8S170.
- 43b. The method of Claim 41, wherein the one or more surrogate markers  
25 comprise DG8S132.
44. A method for predicting the efficacy of a drug for treating a psychiatric disorder or a comorbid disorder in a human patient, comprising determining the orientation of the Inv8p23 genomic region, wherein the orientation of the  
30 Inv8p23 genomic region is indicative of responsiveness or non-responsiveness to the drug in the human patient.



45. The method of Claim 44, wherein the drug is selected from the group consisting of: amine reuptake inhibitors, selective serotonin reuptake inhibitors, selective norepinephrine reuptake inhibitors, combined serotonin-norepinephrine reuptake inhibitors, combined dopamine-norepinephrine reuptake inhibitors, monoamine oxidase inhibitors, reversible/selective inhibitors of monoamine oxidase-A; 5-HT 2A receptor antagonists, combined 5-HT 2A antagonists with serotonin reuptake inhibition, tricyclic drugs, and combined 5-HT 2A, 5-HT 2C and alpha-2 antagonism.
42. The method of Claim 41, wherein the drug is a selective serotonin reuptake inhibitor.
43. The method of Claim 40, wherein the drug is selected from the group consisting of: venlafaxine, sertraline, paroxat, fluoxetine, escitalopram and citalopram.
44. The method of Claim 40, wherein the psychiatric disorder is anxiety disorder.
45. The method of Claim 44, wherein the anxiety disorder is panic disorder.
46. The method of Claim 40, wherein the psychiatric disorder is depression.
47. The method of Claim 40, wherein the psychiatric disorder is bipolar disorder.
48. The method of Claim 40, wherein the orientation of Inv8p23 is determined by detecting one or more markers at one or more polymorphic sites wherein the one or more polymorphic sites are in linkage disequilibrium with the Inv8p23 genomic region and wherein the one or more markers are indicative of the orientation of the Inv8p23 genomic region.

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49. The method of Claim 48, wherein the one or more markers are selected from the group consisting of: DG8S269, SG08S95, SG08S5, SG08S71 and SG08S73.
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50. The method of Claim 48 wherein the drug is venlafaxine.
51. The method of Claim 49, wherein the one or more markers are selected from the group consisting of: DG8S269, SG08S95, SG08S5, SG08S71 and SG08S73.
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52. The method of Claim 48 wherein the drug is fluoxetine.
53. The method of Claim 52, wherein the one or more markers are selected from the group consisting of: DG8S269, SG08S95, SG08S5, SG08S71 and SG08S73.
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54. The method of Claim 48 wherein the drug is Citalopram.
- 20 55. The method of Claim 52, wherein the one or more markers are selected from the group consisting of: DG8S269, SG08S95, SG08S5, SG08S71 and SG08S73.